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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/855,556	05/16/2001	Timothy Warner	01101	1507
23338	7590	11/14/2005	EXAMINER	
DENNISON, SCHULTZ, DOUGHERTY & MACDONALD 1727 KING STREET SUITE 105 ALEXANDRIA, VA 22314			MORILLO, JANEL COMBS	
			ART UNIT	PAPER NUMBER
			1742	

DATE MAILED: 11/14/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b> 09/855,556	<b>Applicant(s)</b> WARNER, TIMOTHY	
	<b>Examiner</b> Janelle Combs-Morillo	<b>Art Unit</b> 1742	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 31 August 2005.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 16-21 and 23-28 is/are pending in the application.  
     4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 26-28 is/are allowed.
- 6) ☒ Claim(s) 16-21 and 23-25 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
     Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
     Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
     a) ☐ All    b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

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## DETAILED ACTION

### *Claim Rejections - 35 USC § 103*

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 16-21, 23-25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shahani et al (US 6,027,582) in view of "ASM Vol. 15 Casting" (hereinafter ASM Vol. 15).

Shahani teaches a rolled, extruded or forged AlZnMgCu alloy >60 mm thick with the following composition (in weight%): 5.7-8.7% Zn, 1.7-2.5% Mg, 1.2-2.2% Cu, <0.14% Fe, <0.11% Si, 0.05-0.15% Zr, <0.02% Mn, <0.02% Cr (column 3 lines 38-52), optionally Ti (column 1 line 60). Shahani teaches the application of a T6 temper (column 16 line 5), which includes solution heating, quenching, artificially aging. Shahani teaches that the fraction of the recrystallized grains between the quarter thickness and half thickness <35% (column 4 lines 1-4). Shahani does not a) specify the intercept distance between recrystallized areas, or b) teach the as-cast grain size.

Concerning item a), as stated above, Shahani teaches a partly recrystallized AlZnMgCu alloy product that is processed in substantially the same way as the presently claimed product. The examiner asserts that where the claimed and prior art products are identical or substantially identical in structure or composition, or are produced by identical or substantially identical processes, a prima facie case of either anticipation or obviousness has been established. *In re Best*, 562 F.2d 1252, 1255, 195 USPQ 430, 433 (CCPA 1977). Therefore, if the prior art teaches

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the identical chemical structure, the properties applicant discloses and/or claims (such as distance between recrystallized areas) are necessarily present. See MPEP 2112.01.

Concerning item b), ASM Vol. 15 teaches “grain refining is widely practiced in the commercial production of virtually all aluminum alloys, whether wrought or cast” (page 476, column 1), and Ti and/or B act as grain refiners during solidification (see ASM Vol. 15 p 476 columns 1-2). For instance, a grain refined AA 7050 can exhibit a grain size from 150-340  $\mu\text{m}$  (see Fig. 68 page 481). ASM Vol. 15 teaches 0.01-0.08% Ti and about 0.003% B are typically used to refine grains (page 477, column 3), and that the addition of Ti and B is a result effective variable (the expected result being finer grains with increased addition, or coarser grains with decreased addition, Figs. 65, 66). It would have been obvious to one of ordinary skill in the art to add Ti and B to the alloy taught by Shahani in order to obtain a finer grain structure, within the presently claimed 300-800  $\mu\text{m}$  as cast grain size, because ASM Vol. 15 teaches an overlapping as-cast grain size (for AA 7050 that has added Ti and B), or because the addition of grain refiners Ti+B is a result effective variable (as set forth above).

Concerning dependent claims 20 and 21, as stated above, because the prior art teaches substantially the same product processed substantially as presently disclosed/ claimed, then the properties applicant discloses and/or claims (such as distance between recrystallized areas) is expected to be present. See MPEP 2112.01.

Concerning dependent claims 22 and 23 Shahani teaches an overlapping alloy composition (as stated above).

Concerning dependent claim 24, Shahani teaches that said product can be used for a structural member of an aircraft (abstract).

***Allowable Subject Matter***

3. Claims 26-28 are allowable over the prior art of record.
4. The following is a statement of reasons for the indication of allowable subject matter: the examiner agrees that said claims are commensurate in scope with the unexpected results in the instant specification. Applicant has shown unexpected improved fracture toughness for a partially recrystallized AA7050 aluminum alloy product with the presently claimed critical as cast grain size range and characteristic intercept distance (see esp. Tables 2, 5, and Figs. 2 and 3 of the instant specification).

***Response to Amendment/Arguments***

5. In the response filed August 31, 2005, applicant amended claim 16 and 23, canceled claim 22, and submitted various arguments traversing the rejections of record. The examiner agrees that no new matter has been added.

The examiner agrees that the claimed alloys are outside the ranges disclosed by Miyasato, and the rejection in view of Miyasato has been overcome.

Applicant's argument that the prior art does not teach an overlapping as cast grain size has not been found persuasive. As stated in the above rejection, "ASM Vol. 15" teaches that grain refined AA7050 can exhibit a grain size from 150-340  $\mu\text{m}$  (see Fig. 68 p 481). Applicant's argument that the present invention is allowable over the prior art of record because that the ASM document taken as a whole does not teach exceeding a grain size of greater than about 260 microns has not been found persuasive. Though the second case on page 477 is applicable to reduce grain size and would result in a grain size below 300  $\mu\text{m}$ , this does not preclude the first

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case of having a Ti/B ratio of between 0.8-3, which is also represented in Fig. 68. Therefore, given the disclosure of "ASM Vol. 15", it is within the level of one of ordinary skill in the art to obtain a 7050 alloy that has been grain refined, with an as cast grain size of 150-340  $\mu\text{m}$ , which overlaps the presently claimed as cast grain size of 270-800  $\mu\text{m}$ .

### ***Conclusion***

6. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.


7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Janelle Combs-Morillo whose telephone number is (571) 272-1240. The examiner can normally be reached on 8:30 am- 6:00 pm.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Roy King can be reached on (571) 272-1244. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

JCM   
November 8, 2005

  
GEORGE WYSZOMIERSKI  
PRIMARY EXAMINER  
GROUP 1742